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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,017	08/17/2006	Masakazu Sueyasu	4900.P0057US	7134
23474 7590 12/17/2008 FLYNN THIEL BOUTELL & TANIS, P.C. 2026 RAMBLING ROAD KALAMAZOO, MI 49008-1631				
EXAMINER SHUMATE, ANTHONY R				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
12/17/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/590,017

Applicant(s)

SUEYASU, MASAKAZU

Examiner

ANTHONY SHUMATE

Art Unit

1797

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 17 August 2006
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Summary

1. This is the initial Office action based on the 10/590,017 application filed 17 August 2006.
2. The preliminary amendment filed 17 August 2006 has been entered and fully considered.
3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.
4. Claims 1-5 are pending and have been fully considered.

Drawings

5. Figure 7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "water" in generate spray of water. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term fog-like is indefinite, since the term "like" is similar to the term "type" which has been found to be indefinite. (MPEP 2173.05 (b))

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by HENNESSY (US 2,195,276).

For instant claim 1, HENNESSY teaches at figure 1, figure 2, column 1 lines 1-45 and column 3 lines 25-55 an exhaust air duct for discharging internal

combustion engine exhaust gas (hot gas and volatile gas generated by heating) of gasoline flow (flux).

For instant claim 1, HENNESSY teaches at figure 1, figure 2, column 1 lines 1-45 and column 3 lines 25-55 container (storage baths) for storing liquid chemicals (cooling liquid).

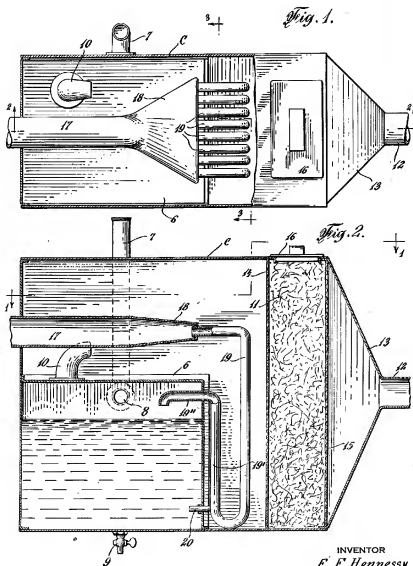
For instant claim 1, HENNESSY teaches at figure 1, figure 2, column 1 lines 1-45 and column 3 lines 25-70 an internal combustion engine (blower) for injecting internal combustion engine exhaust (emission) gas (hot gas and volatile gas generated by heating) of gasoline flow (flux) sent from the exhaust air duct against the surface of the liquid chemicals (cooling liquid) with a force (pressure).

March 26, 1940.

E. F. HENNESSY
MEANS FOR PURIFYING THE GASES OF THE EXHAUSTED PRODUCTS
OF COMBUSTION OF INTERNAL COMBUSTION ENGINES
Filed Feb. 20, 1937

2,195,276

2 Sheets-Sheet 1



INVENTOR
E. F. Hennessy
BY *John C. Luford*
ATTORNEY

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 2 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over HENNESSY (US 2,195,276).

For instant claim 2, HENNESSY teaches at figure 1, figure 2, column 1 lines 1-45 and column 3 lines 25-55 an exhaust air duct for internal combustion engine exhaust gas (hot gas and volatile gas generated by heating (via furnace)) of gasoline flow (flux).

Also for instant claim 2, HENNESSY does not specifically teach HENNESSY an exhaust air duct for hot gas (hot wind) and volatile gas generated by heating of flux disposed at an intake and an outlet of a heating portion of a reflow furnace. But, the device of HENNESSY is capable of having the exhaust air duct for hot gas (hot wind) and volatile gas generated by heating of flux disposed at an intake and an outlet of a heating portion of a reflow furnace, since HENNESSY teaches that the air duct is for internal combustion engine exhaust gas which is similar to hot gas (hot wind) and volatile gas generated by heating of flux disposed at an intake and an outlet of a heating portion of a reflow furnace.

Furthermore for instant claim 2, if the prior art structure is capable of performing the intended use, then it meets the claim. Apparatus claims must be structurally distinguishable from the prior art in terms of structure, not function. The manner of operating an apparatus does not differentiate an apparatus claim from the prior art, if the prior art apparatus teaches all of the structural limitations of the claim (see MPEP § 2114 & § 2173.05(g)).

Additionally for instant claim 2, HENNESSY teaches at figure 1, figure 2, column 1 lines 1-45 and column 3 lines 25-55 container (storage baths) for storing liquid chemicals (cooling liquid).

In Addition for instant claim 2, HENNESSY teaches at figure 1, figure 2, column 1 lines 1-45 and column 3 lines 25-55 an internal combustion engine (blower) for injecting internal combustion engine exhaust (emission) gas (hot gas and volatile gas generated by heating) of gasoline flow (flux) sent from the exhaust air duct against the surface of the liquid chemicals (cooling liquid) with a force (pressure).

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over HENNESSY (US 2,195,276).

For instant claim 5, HENNESSY teaches at figure 1, figure 2, column 1 lines 1-45 and column 3 lines 25-70 wherein exhaust (emission) gas including internal combustion engine exhaust gas (hot gas and volatile gas generated by heating (via furnace)) of gasoline flow (flux) sent from the injection port (20) is

made to collide with the liquid surface. But, HENNESSY does not specifically teach wherein emission gas including hot gas (hot wind) and volatile gas generated by heating of flux sent from the injection port is made to collide with the liquid surface so as to generate spray of water so that fog-like water droplets make contact with the hot gas to secure cooling efficiency. It would have been obvious to one having ordinary skill in the art at the time the invention was made to generate spray of water so that fog-like water droplets make contact with the hot gas to secure cooling efficiency, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (MPEP 2144.05 PART II-A)

14. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over HENNESSY (US 2,195,276) in view TAI (US 6,361,698 B1).

For instant claim 3, HENNESSY teaches at figure 1, figure 2, column 1 lines 1-45, column 2 lines 60-75 and column 3 lines 25-55 wherein an injection port (20) for internal combustion engine exhaust gas (hot gas and volatile gas generated by heating) of gasoline flow (flux) sent from the main conduit (17) (exhaust air duct) is disposed in the vicinity of the surface of liquid chemicals (cooling liquid).

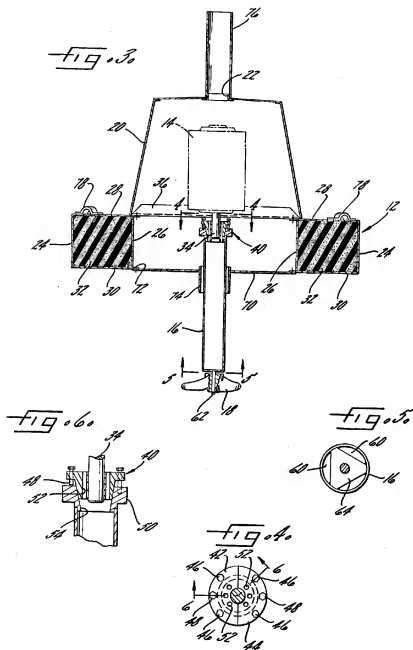
Also for instant claim 3, HENNESSY does not teach the injection port is disposed in a condition of being floated on the liquid surface with floats and the

injection port on the floats is lifted up/down corresponding to changes of the level of the cooling liquid so that the distance between the liquid surface and the injection port is kept constant. But, HENNESSY does teach at figure 1, figure 2, column 1 lines 1-45, column 2 lines 60-75 and column 3 lines 25-55 an injection port (20) is disposed in the vicinity of the liquid surface. Also, BLOUGH teaches at the title, the abstract, figure 3, figure 5, column 1 lines 45-68, column 2 lines 1-36, and column 4 lines 5-35 a similar injection port (60) device which is disposed in the vicinity of the liquid surface. Additionally, BLOUGH teaches at the title, the abstract, figure 3, figure 5, column 1 lines 45-68, column 2 lines 1-36, column 3 lines 1-68, column 4 lines 5-35 and column 5 lines 40-60 the technique of the injection port (60) is disposed in a condition of being floated on the liquid surface with floats and the injection port (60) on the floats is lifted up/down corresponding to changes of the elevation level of the liquid (cooling liquid) so that the distance between the liquid surface and the injection port is kept constant. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the technique taught by BLOUGH to the similar HENNESSY device for the benefit of the device following the elevation of the material in a reservoir even though the surface elevation may vary over a considerable vertical distance as taught by BLOUGH at column 5 lines 40-60.

PATENTED MAY 14 1974

3,810,548

SHEET 2 OF 2



For instant claim 4, HENNESSY does not specifically teach wherein the emission gas from the injection port is injected to collide with a scattering plate so that it is scattered. But, HENNESSY does teach at figure 1, figure 2, column 1 lines 1-45, column 2 lines 60-75 and column 3 lines 25-70 wherein the exhaust (emission) gas from the injection port (20) is injected. Also, BLOUGH teaches at the title, the abstract, figure 3, figure 5, column 1 lines 45-68, column 2 lines 1-36, and column 4 lines 5-35 a similar injection port (60) device which injects a gas (air). Additionally, BLOUGH teaches at the title, the abstract, figure 3, figure 5, column 1 lines 45-68, column 2 lines 1-36, column 3 lines 1-68, column 4 lines 5-35 and column 5 lines 40-60 the technique of wherein the gas (air) from the injection port (60) is injected to collide with a scattering plate (64) so that it is scattered. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the technique taught by BLOUGH to the similar HENNESSY device for the benefit of the device to generate a multitude of small bubbles having a diameter of approximately 1 millimeter and therefore have a high surface area to volume ratio which is conducive to the efficient and rapid dissolving of gas (oxygen) within the waste material as taught by BLOUGH at column 5 lines 40-60.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY SHUMATE whose telephone number is (571)270-5546. The examiner can normally be reached on M-Th 9-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571)272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Duane S. Smith/
Supervisory Patent Examiner, Art
Unit 1797

/A.S./
Examiner Art Unit 1797